TB CARE II
BANGLADESH

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LIST OF ACRONYMS

ACSM	Advocacy, Communications, and Social Mobilization
AIDS	Acquired Immune Deficiency Syndrome
AOTR	Agreement Officer's Technical Representative
CB-DOTS	Community-based DOTS Program
cPMDT	Community based Programmatic Management of MDR TB
CBO	Community Based Organization
CDC	Chest Disease Clinics
CDCS	Country Development Cooperation Strategy
CDR	Case Detection Rate
CHW	Community Health Workers
DOTS	Directly Observed Treatment Short-course Strategy
DRS	Drug Resistance Survey
DST	Drug Sensitivity Testing
FDC	Fixed Dose Combination
FHI	Family Health International
GFATM	Global Fund to Fight AIDS, TB, and Malaria
GHI	Global Health Initiative
GLC	Green Light Committee
GOB	Government of Bangladesh
HBC	High Burden Country
HIV	Human immunodeficiency virus
IC	Infection Control
ISTC	International Standards of TB Care
LMIS	Logistic Management Information System
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MDR TB	Multi drug-resistant TB
MOH	Ministry of Health and Family Welfare
NIDCH	National Institute of Diseases of the Chest and Hospital
NRL	National Reference Laboratory

NTP	National Tuberculosis Control Program
PAL	Practical Approaches to Lung Health
PIH	Partners In Health
PMP	Performance Monitoring Plan
PPM	Public Private Mix
PPP	Public Private Partnerships
QA	Quality Assurance
TB	Tuberculosis
TB CAP	Tuberculosis Control Assistance Program
TCN	Third Country National
TSR	Treatment Success Rate
URC	University Research Co., LLC
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization
XDR TB	Extensively drug resistant TB

1 EXECUTIVE SUMMARY

The Bangladesh TB program has already achieved its global targets for case detection and treatment success rates. However, there is now consensus that meeting these targets alone is not enough to reduce morbidity, mortality and transmission of TB. Emphasis is now on universal access to TB care for all TB patients in the community and high risk groups, expanding facilities for diagnosis and treatment of MDR TB services, and strengthening health systems to improve national capacity to provide high quality TB services in a sustainable manner.

Aligned with National TB Control Programme strategic objectives and USAID/Dhaka strategic framework, the TB CARE II partnership's activities complement the Global Fund and Government of Bangladesh efforts to strengthen all the components of Stop TB Strategy with a major emphasis on universal and early access to TB services, Programmatic Management of Drug Resistant TB (PMDT), and health systems strengthening. The TB CARE II Bangladesh project results framework has been developed to contribute to achieving Mission IR 3.2 Increased Use of Integrated Essential Family Planning, Health (including TB) and Nutrition Services and IR 3.3 Strengthened Health Systems and Governance.

The project was started in April 2011. Being a new project, the primary challenges in the first few months were to complete recruitment and mobilization of human resources, set up office structure, organize management processes and procedures, conduct the initial baseline assessment, and to develop a working relationship with NTP and other local implementing partners. Completion of these activities took more time than anticipated causing some delay in starting actual implementation of the Year 1 work plan.

Despite the initial delay, the project made good progress in implementing activities planned to achieve project objectives. Six districts and three city corporations were selected for Year 1 for the first phase of implementation of project activities. However, actual implementation of project activities remained confined mostly at the national level.

Increase Access to Quality TB and MDR TB Services

As per Year 1 work plan, the project implemented several activities to increase access to TB and MDR TB services. Given the project focus on increasing detection of TB amongst children, a draft National Guideline and Operational Manual for the Management of Childhood Tuberculosis has been developed. Developing this manual was a priority for designing and organizing training on child TB detection and management.

The project continued to supporting a Microbiologist based at NTRL to enhance national capacity for increasing detection of MDR TB cases. During the project period, 3,352 routine microscopy, 1,620 routibe TB culture, and 1,950 drug susecptibility tests have been performed. This routine services helped diagnose 81 MDR TB cases. The Microbiologist also played a key role in the on-going Drug Resistance Survey that helped diagnose additional 43 MDR TB cases.

The project made some significant policy level changes to expand access to MDR TB services. An assessment was carried out to identify gaps and needs to initiate cPMDT to decentralize management of MDR TB services at the district level. A Standard Operating Procedure for cPMDT has been developed for the first time with technical support of the project. Completion of these activities has set the stage for rolling out cPMDT that is planned to start in FY12.

Increased Compliance with TB and MDR-TB Treatment Guidelines and Regimen

The project has been supporting a Counselor based at NIDCH to provide regular counseling services to MDR TB patients in order to improve patient compliance with treatment regimen. During the project period, the Counselor conducted 488 sessions of individual counseling and 47 sessions of group counseling for 147 patients who were receiving in-patient MDR TB services at NIDCH. The project also supported vocational training and trained 60 MDR TB patients on dress making, which might enable patients to rehabilitate in the society and start a normal life after completion of the treatment.

Strengthened Support Systems for effective delivery of TB services

In collaboration with NTP and other local partners, the project supported a situational analysis to identify gaps and weaknesses in the quality assurance system for laboratory services both at the national and in the targeted districts. The findings and recommendations have been shared with NTP and used to develop an action plan that will be implemented in Year 2 for improving quality of laboratory services.

A major accomplishment of the project was to update and standardize the training materials and curriculum on AFB microscopy. This effort will ensure uniformity and quality of AFB microscopy training conducted by NTP and other partners. The project has also successfully conducted hands-on training on AFB Microscopy for all lab technicians from the six selected districts. A total of 103 lab technicians from GOB and NGO partners have received this training, which will improve sputum sample collection, processing, and quality of smear examination.

The project provided technical assistance to revise and finalize the national guidelines for TB Infection Control. The draft guideline was finalized through a workshop in July 2011. This was done in a collaborative manner involving representatives from NTP, WHO, and other partner organizations. The project also supported printing and distribution of the 2,500 guidelines. The project also distributed 3,500 N-95 respirators, which were procured under the TB CAP project, to the TB laboratories and treatment centers in discussion with NTP.

In order to strengthen national capacity for surveillance of MDR TB, the project has been playing a key role in assisting NTP in completion of the first National Drug Resistance Survey (DRS). The project staff including the Lab Specialist, Microbiologist, and MIS staff played a key role in planning, processing and analyzing samples, coordinating sample collection from the field level, and monitoring quality and accuracy of survey data.

2 INTRODUCTION

TB remains a major public health problem in Bangladesh. The country ranks sixth among 22 highest burden TB countries in the world. It is estimated that more than 360,000 new TB cases of all forms with about 170,000 infectious cases emerge each year (WHO 2008). It is estimated that about 70,000 people die every year due to TB. In 2009, 160,735 TB cases were notified to NTP. Case notification rate of all forms of TB is low at 47%. The proportions of smear-negative and retreatment cases are too low. Although there is no estimate on the prevalence of childhood TB, it is believed that childhood TB is severely under-diagnosed.

MDR TB is an emerging threat in Bangladesh. According to WHO estimates, MDR-TB rate among all newly diagnosed cases is estimated at 2.2%, and among previously treated cases at 15%. The total number of MDR TB cases estimated for 2008 was 9,800 of which more than 3,000 cases are notified as pulmonary TB. However, the capacity for diagnosis and treatment remains extremely limited, with only one GLC-approved facility (NIDCH) located at the central level for diagnosis and treatment of MDR cases. An effective and immediate response is needed as drug resistance continues to increase and to strain the capacities of National TB Program.

The TB CARE II Bangladesh project is a field support activity funded through the USAID TB CARE II Project, which is a five year cooperative agreement awarded to University Research Co., LLC (URC) led consortium on September, 2010. A primary function of the USAID TB CARE II Project is to facilitate access to a team of expert organizations able to provide global leadership in TB and to field program teams to assist in implementing TB prevention and treatment strategies, with the goal of building sustainable local capacity to provide high quality TB services. The project, leveraging the Global Fund and the Government of Bangladesh resources, will facilitate implementation of strategies to strengthen and expand TB DOTS, Programmatic Management of Drug Resistant TB (PMDT) programs, and health systems.

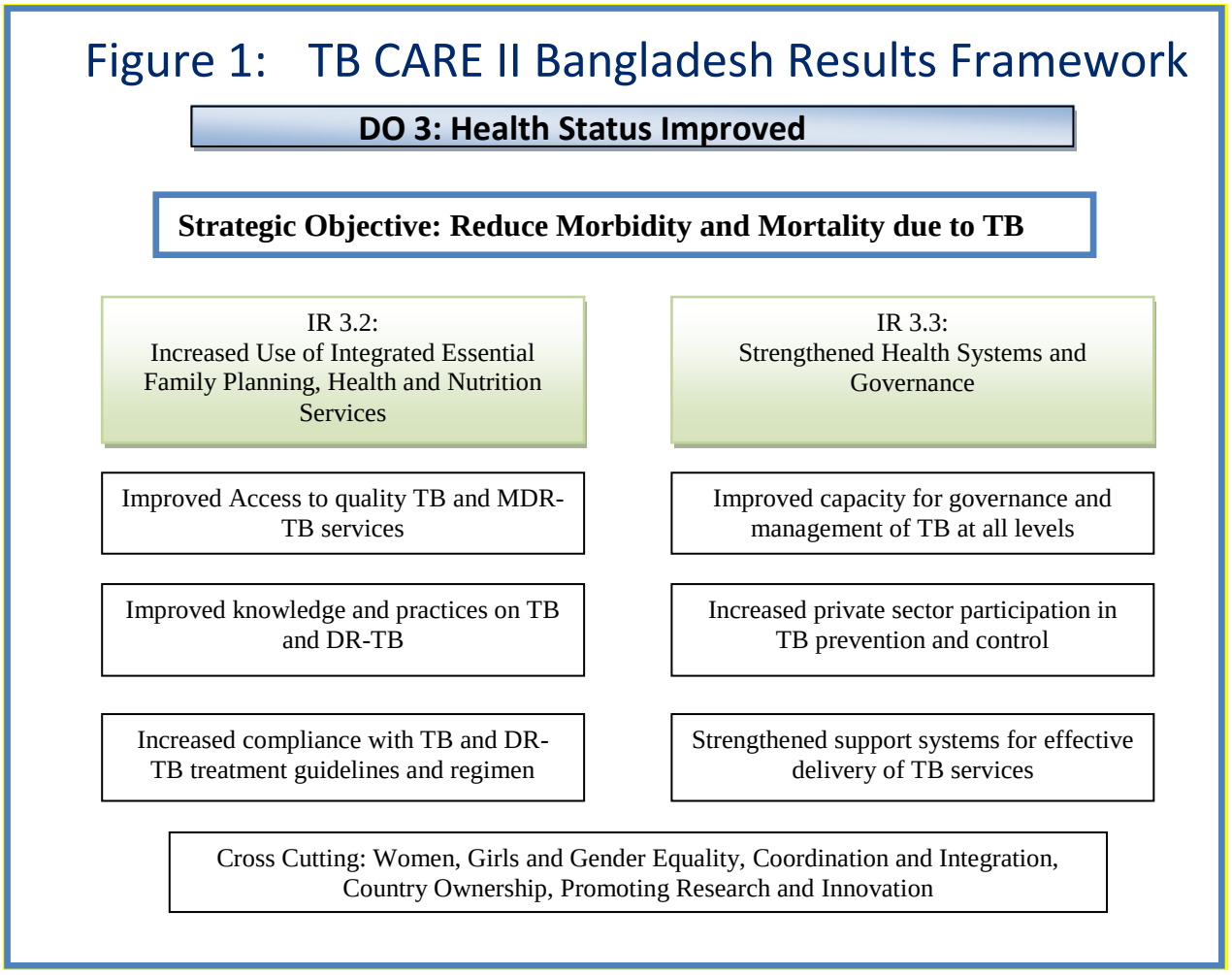
2.1 USAID/Bangladesh Objectives for the TB CARE II Project

The TB CARE II project has been designed in consultation with USAID/Bangladesh and NTP to contribute to achieving Bangladesh national objectives for preventing and controlling TB and to help GOB achieve its Millennium Development Goals (MDGs) for TB. The specific objectives of the project include the following:

- Improve universal access to TB diagnosis and treatment;
- Work with GOB to reach and sustain the global targets of > 80% case detection and > 90% cure rates under DOTS;
- Providing high quality DOTS through all levels including those of private providers;
- Improve programmatic management of MDR TB and increase access to MDR TB prevention and treatment through community-based approaches
- Strengthening diagnostic capacity for drug susceptible and drug resistant TB
- Health systems strengthening with a Upazila-based approach as accepted in GHI Bangladesh strategy

2.2 USAID/Bangladesh Results Framework

The goals and objectives of this project are in line with the USAID/Bangladesh GHI Strategy, the USAID/Bangladesh CDCS, the GOB's health sector program, and USAID FORWARD reforms. This project will contribute to two Intermediate Results (IRs) of CDCS Development Objective 3: Health Status Improved. These are IR 3.2 Increased Use of Integrated Essential Family Planning, Health and Nutrition Services, and IR 3.3 Strengthened Health Systems & Governance. IR 3.2 covers TB services, which is a part of essential service delivery package. The GHI principles of gender equity, coordination and programmatic integration, encouraging country ownership and investing in country-led plans and health systems, and promoting research and innovation are cross-cutting themes of this project.



2.3 Geographic Coverage

The project has been designed with a three-phased implementation plan to cover 30 districts of the country. The plan for Year 1 was to start project operations in 6 districts with 45 upazilas in Dhaka, Chittagong, Khulna, Rajshahi and Rangpur divisions including Dhaka, Khulna, and Rangpur city corporations (see **Table 1** below). The selection of the districts was finalized in discussion with NTP.

Table 1: Selected Districts for Year 1 Implementation

Division	District	Number of Upazilas	Population
Dhaka	Gazipur	6	2,502,581
	Manikganj	7	1,462,089
	Dhaka City Corporation		6,000,000
Khulna	Jessore	8	2,888,757
	Khulna City Corporation		1,400,689
Chittagong	Feni	6	1,348,343
Rangpur	Dinajpur	13	3,081,865
	Rangpur City Corporation		251,699
Rajshahi	Joypurhat	5	970,092
Total		45	19,906,115

2.4 Baseline Assessment

A rapid baseline assessment was conducted in twelve *upazilas* and three Chest Disease Clinics (CDCs) within the six districts from five divisions of Bangladesh. A total of fifteen facilities from the six TB CARE II districts were visited from April 11-28, 2011. The sites were purposively selected with guidance from the NTP and selection was based on low performing areas, as well as those that could be easily communicated with and were feasible to visit from the logistics perspective. The baseline was conducted in a participatory manner with staff from NTP, local implementing partner (BRAC) and TB CARE II Bangladesh project.

Baseline Assessment Objectives

- To assess the strengths, weaknesses and challenges of facilities providing TB services in Bangladesh
- To assess the condition of the facility infrastructure, human resource capacity and overall workload for TB program staff
- To assess the laboratory facility and its performance, as well as the knowledge and skill of the laboratory technicians
- To learn about the advocacy, communication and social mobilization (ACSM) activities in the districts / facilities and the overall awareness of the program related to TB disease.

Table 2: Major Findings and Recommendations

Findings/Gaps	Recommendations
1. Physical Structure and Facility Management	
No separate waiting room/space for TB suspects and patients	TB suspects / patients could be triaged from the common waiting area to prevent infecting others
Majority of CDCs are very old with damp walls and no secure place for keeping costly equipment	Steps should be taken to repair damp walls and ensure security for equipments

2. Health System and Human Resources Capacity	
No systematic plan for training and/or refresher training of TB service providers and lab staff	High importance should be given to organize basic/refresher training for all TB program staff
Supervisor often do not provide any written report or feedback after visit	Facilitate supportive supervision visit using organized checklist as per NTP Guidelines with provision for written report/feedback
Absence of infection prevention and control mechanisms	Infection control procedures should be implemented in all health complexes
No emphasis on providing proper counseling for suspected and diagnosed TB patients	Organize counseling training for GOB staff and encourage them to participate in TB awareness program
Non-functioning and poor quality X-Ray machines and inadequate supply of X-Ray plates at UHCs/CDCs hamper diagnosis of Smear (-) and EPTB cases	Support advocacy activities and communication with NTP for timely repair and replacement of X-Ray machines and supply of X-Ray plates
3. Program Performance: Case Finding and Treatment	
Case detection rate for all forms of TB is much lower than new WHO target of 84%	Integration of PAL approach to address missed opportunities with focus on detection of Smear (-), EPTB, and childhood TB cases
Among the unfavorable outcomes, death is the most common, followed by default	Strategies for reducing patient delays, early diagnosis and treatment, and patient holding through counseling and follow-up
4. Laboratory Services	
GOB lab staff overburdened with work and demoralized	Additional lab staff through NGO may be a temporary option to reduce the workload
Both quality and maintenance of older-model Olympus microscopes are unsatisfactory	Microscopes should be stored in cupboards with a light bulb, and cleaned every day
Quality of sputum, smearing and staining is not satisfactory leading to lower the number of detected AFBs cases and false negatives	Improve training, monitoring and supervision of lab staff to ensure quality sample/sputum collection, smear preparation and staining
Very low positive rates in follow-up patients and low detection of scanty positive smears. This may cause delay in case finding and missing treatment failure which are potential source of MDR-TB.	Ensure true blinded re-checking with emphasis on smear positive slides which are rarely selected for EQA
EQA supervision from EQA 1st controller and 2nd controller is not fully in place	Regular lab visit by EQA 1st Controller and sharing findings with partners and EQA coordinators

3 ACCOMPLISHMENTS BY RESULTS

3.1 Increased Use of Integrated Essential Family Planning, Health & Nutrition Services

3.1.1 Improved Access to quality TB and MDR-TB Services

3.1.1.1 Increased detection and management of TB

Rapid assessment to identify factors causing delays

An effective TB control program requires early diagnosis and immediate initiation of treatment to reduce transmission. Most TB transmissions occur between the appearance of coughing and a few weeks after the initiation of treatment. Delay in tuberculosis diagnosis also lead to a more advanced disease state, which contributes to overall mortality.

In partnership and coordination with TB CARE II Global project, the Bangladesh country project team developed an agreement with NTP to conduct a small scale study in the targeted districts of the project to identify reasons for delay at the patient, access, and health facility levels in diagnosis and treatment of TB.

During the reporting period, the project finalized the study protocol and questionnaire in discussion with NTP and completed 60% of the data collection. The findings of this study will be used to increase active case finding by integrating TB screening into different outpatient services and planning appropriate ACSM activities to reduce patient delays in care seeking for TB services.

Improve Childhood TB Management

Childhood TB was a much neglected area in Bangladesh. Nationally, the detection of childhood TB is at 3.5% while the expected detection rate is estimated around 11% of the total detected cases. In order to improve detection of childhood TB, the project developed a detailed plan to support NTP for strengthening case identification and management of childhood TB.

As a first step towards this initiative, the project engaged a pool of local pediatricians and provided technical assistance to developing a national guideline for management of childhood TB. In September 2011, the project organized a workshop with renowned paediatricians, program personnell from NTP, WHO, ICDDR,B and NIDCH. A draft National Guideline and Operational Manual for the Management of Childhood Tuberculosis has already been developed incorporating suggestions and recommendations from the workshop. This guideline will be the basis for developing training manuals for management of childhood TB and will be printed and distributed to appropriate health facilities in the first quarter of FY 12.

Workshop for developing National Guidelines & SOP for Child TB management

Case Detection and Management

In Year 1, 6 districts were selected for implementation of project activities. The project was started in April 2011. During the five months of project life, it was practically not possible to initiate the field level activities except completion of training of all lab technologists on AFB sputum microscopy from the selected districts.

Since increasing case detection of all forms of TB is one of the primary objectives of the project, mechanisms have been set up with NTP to collect and track district level TB performance data. The data presented in **Table 3** below relates to first and second quarter of 2011. Normally, quarterly data is not available until after 6 months from end of that quarter. In the next year, the project plans to work directly with the targeted districts and set up a data collection system in order to support reporting of performance indicators in a more timely manner.

Table 3: Case Detection and Treatment Outcome in 6 Targeted Districts

Case Detection and Treatment Outcome in 6 Targeted Districts			
Indicators	**Baseline (2010)**	**Quarter 1 (2011)**	**Quarter 2 (2011)**
Case Notification Rate of SS+ cases	83.5%	77%	78%
Total number of detected SS(+) cases	10548	2435	2467
Total number of detected SS(-) cases	1275	359	424
Total number of detected EPTB cases	1372	400	521
Total number of child TB cases	214	67	80
Number of all forms of TB cases put on treatment	13580	3273	3503
Treatment Success Rate of detected SS(+) cases	93%	93%	93%
Treatment Cure Rate of detected SS(+) cases	92%	92.5%	93%

Based on the available data up to second quarter, the average case detection rate for the 6 districts is 77%, which is more than the national level. However, the rate is lowest in Jessore (54%) and Manikganj (66%). The proportion of SS(-) cases amongst all forms of detected cases is only 12%, which is significantly lower than the expected level. The detection of childhood TB is 2.3%, which is very low compared to expected level of 11%. Increasing detection of SS(+) and child TB cases is, therefore, a priority area under the TB CARE II project.

3.1.1.2 Increased detection of MDR TB cases

The national capacity for detection of MDR TB cases is very limited. Diagnostic services such as culture and DST which are the two gold standards for diagnosis of MDR TB are available mainly at the NTRL in Dhaka. Although RTRL in Chittagong has recently started its operations, its capacity for providing quality culture and DST and services are very limited for different reasons.

The project has been assisting NTP to provide quality diagnostic services to enhance national capacity for increasing detection of MDR-TB cases. As a part of this effort, the project has been supporting a Microbiologist who is based at NTRL and makes a significant contribution to providing routine AFB microscopy, DST and culture services. The project also supports a MIS staff at NTRL for recording and reporting lab services provided by the center. During the reporting period, 2,742 routine microscopy, 610 routine TB culture, and 1010 DSTs have been performed by the project supported staff. The **Table 4** below shows month-wise performance of lab services provided by project supported Microbiologist at NTRL.

Table 4: Laboratory Services Provided by Microbiologist

Type of Service	Performance						Total
	April	May	June	July	August	Sept	
Routine Microscopy	480	472	510	400	420	460	2742
Routine TB Culture	150	200	180	0	80	0	610
Number of DST	110	180	160	160	200	200	1010
Strain preservation	0	80	70	160	70	560	740
Number of culture reading	160	180	170	0	60	150	920
Number of DST reading	120	160	150	145	180	320	1075

Laboratory Quality Assurance

The Microbiologist is also playing a key role in maintaining quality of lab services provided by NTRL, which is the only laboratory in Bangladesh that is recognized by GLC and WHO. In addition to working at the bench level, the Microbiologist is acting as a technical supervisor to ensure that laboratory personnel are following the standard operating procedures for performing

all laboratory tests. Table 5 below shows NTRL's sustained level of performance to comply with quality assurance standards.

Table 5: Performance in Quality Assurance

Services	Standard	Performance	
		2010	2011
EQA for AFB Microscopy (slides discordant)		0%	0%
Contamination rate in Culture	3-5%	4.08%	3.80%
EQA for Drug Susceptibility Test*	>90%	>90%	>90%

*EQA performed by Supra National Laboratory, Antwerp, Belgium

3.1.1.3 Increased access to quality MDR-TB treatment

Management of MDR TB patients at Community Level

According to WHO report 2010, it is estimated that there are 9,800 new cases of MDR TB each year in Bangladesh. A more accurate estimate will be available after completion of the Drug Resistant Survey (DRS), which is currently underway. Based on preliminary findings of DRS, it is estimated that there are 7,000 new MDR TB cases every year.

Contrary to the large number of MDR TB cases emerging every year, the capacity for treatment of MDR TB is extremely limited and centralized with only two functioning facility – NIDCH in Dhaka and Chest Disease Hospital in Chittagong. Since initiation of the MDR TB treatment program in 2008, it has been possible to enroll only 623 patients for treatment up to October 2011.

The current Bangladesh treatment protocol requires minimum 6 months of hospitalization before the patient is released for ambulatory care for another 18 months. This prolong hospitalization further limits the national capacity for treatment of MDR TB patients. In order to address the situation, the TB CARE II project will implement a decentralized Community-based Programmatic Management of MDR TB (cPMDT) as a practical solution to develop national capacity for management of increased number of MDR TB patients.

Achievement Highlights

- *TB CARE II Project became a member of DOTS Plus Committee*
- *Development of cPMDT Standard Operating Procedures*
- *Assessment of District level capacity to roll out cPMDT*

Membership of the DOTS Plus Committee

Since the project has started its operation, there have been significant policy level achievements towards initiation of Community-based Programmatic Management of MDR-TB (cPMDT). The

project has already received NTP approval to work as a member of the National DOTS Plus Coordination Committee. As a member of this committee, the project has acted as a successful catalyst in establishing MDR TB management as a national priority and initiating important policy changes.

District Level Assessment for Rolling Out cPMDT

During June-July 2011, the project supported a rapid assessment to identify strengths, weaknesses, and readiness of the central and periphery level facilities to initiate C-PMDT. The TB CARE II team including project partner Partners In Health along with NTP and NGO implementing partners carried out the assessment. The assessment looked into district level capacity on ambulatory care for MDR-TB patients, systems to ensure DOTS services to patients, household infection control, side effects management, surveillance to identify suspected MDR TB cases, and transportation of sputum to NTRL/RRL for culture and DST.

DOT service system assessment

Community Level MDR TB facility assessment

Development of cPMDT Standard Operating Procedures

Following the Year 1 workplan, the project has developed a Standard Operating Procedures on cPMDT. The SOP was developed in a participatory manner involving NTP, local implementing partners and technical experts. Dr. Michael Rich, a renowned MDR TB expert from Partners In Health (PIH), and local project staff provided the technical support and facilitated the process for

Consultative Workshop to finalize the cPMDT-SOP

developing the SOP. The draft cPMDT SOP was presented at the 11th DOTs Plus Coordination committee meeting in July 2011 and finalized it through a national workshop held in September 2011. This SOP will serve as the basis for initiating cPMDT activities in three selected districts planned under Year 2 workplan.

Update Ambulatory Care Training Materials

Infection control at the household level is an important element of cPMDT in order to ensure that the household and community are safe from any possible MDR TB infection. This component was not addressed in the ambulatory training program of NTP. The project identified this gap and provided technical assistance to incorporate IC in the training curriculum. The revised curriculum will be used for all future ambulatory care training.

Rehabilitation of MDR TB patients

The project also supports a Vocational Trainer at NIDCH who provides training on cutting and sewing dresses in order to provide support for patients after completion of treatment.

Self-employed Ex-MDR TB patient after vocational training

The Vocational Trainer trained a total of 60 MDR TB patients on dress making. The trainer also helps patients make protective masks for use by the patients themselves.

Recording and Reporting of MDR TB patients

The project supports a MIS Assistant at NIDCH and developed a computer-based system for recording, tracking, and reporting of MDR TB patients. During the project period, the MIS Assistant recorded 147 new MDR patients and periodically updated in-patient and ambulatory care status.

3.1.2 Increased Knowledge and Behavior on TB and MDR-TB

Grants Program through NGOs

NGOs play a key role in the implementation of TB control activities in Bangladesh. They have outstanding implementation experience and nationwide and community-based structures and workforce to reach out to underserved and vulnerable populations. NGOs have significant potential to conduct further advocacy, communication and social mobilization activities to improve knowledge and behavior on TB and MDR TB.

Considering this fact, the project will support a grants program through local NGOs to increase knowledge and awareness about TB, increase identification of suspected TB cases, and improve access to diagnosis and treatment of TB services. Through the grants program, the project will particularly target underserved areas and vulnerable populations e.g., women, children, garment workers, prison inmates, slum-dwellers, and floating populations to improve early diagnosis and treatment of TB patients among these groups.

The project has developed an RFA along with the scope of work that will be supported through the grants program. The project expects to make up to 10 awards to local NGOs in early FY12.

3.1.3 Increased Compliance with TB and MDR-TB Treatment Guidelines and Regimen

Increased Provider Compliance with TB DOTS

According to Year 1 workplan, the project planned to assist the NTP and NGO implementing partners in developing trainers for training on treatment guidelines and patient counseling. Strengthening upazila level capacity for defaulter tracing and follow up transfer-outs was also planned for implementation. TB CARE II partner WHO was expected to lead implementation of these activities. Since, the project could not finalize its partnership with WHO, no progress could be made on these activities.

Increased Patient Compliance with MDR TB Treatment Regiment

The project supports a Counselor at NIDCH who frequently meets with the MDR TB patients both individually and in groups. The counseling is tailored to ensure treatment adherence in order to reduce drop out and eventually default rate. The counseling is also intended to provide psychological support that is critical to help the patients overcome depression and stress due to prolonged treatment.

During the project period, the Counselor conducted 488 sessions of individual counseling and 47 sessions of group counseling for 147 patients who were receiving in-patient MDR TB services at NIDCH.

3.2 Strengthened Health Systems and Governance

3.2.1 Improved Capacity for Governance and Management of TB at all levels

According to the Year 1 workplan, the project intended to develop a training plan in consultation with GFATM to improve program planning and management capacity of TB control program managers at various levels. Due to time constraints and other priotities, this activity could not be undertaken as planned and has been planned for implementation in Year 2.

The project through its partnership with WHO planned to support one National Professional Officer for the life of project and two National Professional Officers for 6 months in order to strengthen management capacity of NTP. Because of the delay in signing the agreement with WHO, the project could not support any of these WHO staff, which in turn, delayed implementation of some of activities planned in Year 1.

3.2.2 Increased Private Sector Participation in TB Prevention and Control

The activities planned for increasing public-private mix in TB prevention and control will be implemented in Year 2 through the NGO grants program.

3.2.3 Strengthened Support Systems for effective delivery of TB services

3.2.3.1 Laboratory Services and Systems strengthened

Assessment of Lab Services

As per the Year 1 work plan, the project conducted a situational analysis of the gaps and weaknesses in the quality assurance system for laboratory services both at the national and in the targeted districts. The analysis also looked into the level of compliance with international and national standards in identified laboratories. TB CARE II partner CLSI provided technical assistance in conducting this assessment in collaboration with NTP, NGO implementing partners and project staff. The findings and recommendations have been shared with NTP and used to identify and prioritize actions for implementation in Year 1 and developing Year 2 work plan.

LED Microscopes

The project planned to rollout the LED microscopes that were procured under TB CAP. Project staff assisted NTP to identify high volume labs where the microscopes will be installed. A training plan has also been developed. The microscopes will be put into operation at the selected labs early next year after completion of the training of the lab technicians.

AFB Microscopy Training of Lab Technicians

The project has successfully conducted AFB microscopy training for all lab technicians from the selected districts. Before organizing the training, a major task was to update and standardize the training materials and curriculum on AFB microscopy. The project supported the NTP to organize a workshop to finalize the training materials.

The project assisted the NTP to conduct training of all the lab technologists from the targeted districts. In addition, five participants were also trained from Narayanganj, which is a target district for Year 2. Of the 103 participants who received this training, 57 were new participants and the remaining 46 participants had not received this training in the last five years. Please see **Table 6** below for the number and background on the trainees.

Table 6: AFB Microscopy Training

AFB Microscopy Training				
Name of District	**GOB Participants**	**NGO Participants**	**Total Participants**	**New Participants**
Dinajpur	13	22	35	8
Feni	7	4	11	11
Gazipur	5	5	10	6
Jessore	9	11	20	14
Joypurhat	5	8	13	11
Manikganj	5	4	9	4
Narayangonj	0	5	5	3
Grand total	44	59	103	57

The training was designed to update lab technician skills in sample collection, smearing and staining, microscopic examination, smear evaluation, recording and reporting, supply management, quality assurance, reagents preparation, and troubleshooting. The participants spent the majority of their training time in front of microscopes, practicing the theoretical lessons they had learned. This training will improve sputum sample collection, processing, and quality of smear examination.

The training was organized in three different laboratory facilities in Dhaka in order to ensure that the microscopes are available for practical training.

Trainees attending a practical session

At the end of training of each batch, the course coordinator reviewed the performance of the trainees and awarded the best performer of each batch. This award created a sense of competition and striving for perfection.

3.2.3.2 Improved Drug Supply and Management

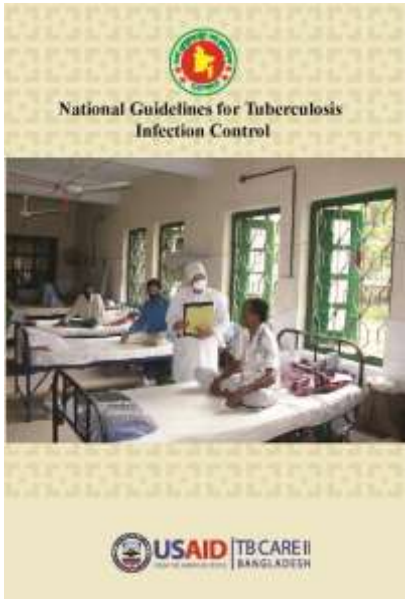
Following the Year 1 work plan, the project conducted a situational analysis in June-July 2011 to identify gaps and weaknesses to develop a strategic action plan to improve supply chain management of anti-TB drugs and lab consumables. TB CARE II partner EuroHealth Group (EHG) fielded Mr. Raj Gonsalkorale, a Procurement and Supply Management expert, to conduct the analysis. Along with NTP, NGO implementing partners and project staff, he carried out the analysis. The recommendations from this analysis were used to develop an action plan for Year 1 and 2 to improve TB drugs and supplies.

As per USAID's decision, the USAID supported logistics management project implemented by Management Sciences for Health (MSH) will be the lead partner in improving drug supply and management. TB CARE II will have a supportive role in revising Standard Operating Procedures for supply management and coordinate training of pharmacists/store keepers on TB drug forecasting and commodity managements in the targeted districts.

Development of TB Infection Control Guidelines

TB infection control practices are not uniformly or stringently followed in hospitals, laboratories, and microscopy centers of Bangladesh. The implementation of TB infection control is considered to be an important area for TB CARE II Bangladesh due to the emergence of MDR TB and extremely drug resistant TB (XDR-TB).

As per Year 1 workplan, the project provided technical assistance to revise and finalize the national guidelines for TB IC. The draft guideline was finalized through a workshop in July 2011. This was done in a collaborative manner involving representatives from NTP, WHO, and other partner organizations The project also supported printing and distribution of 2,500 copies of the guidelines.



Personal Protective Equipment

Health care workers are at an increased risk of TB infection compared to the general population. However, use of personal protective equipment is not strictly practiced and often not available because of lack of resources and management initiative. In Year 1, the project distributed 3,500 N-95 respirators, which were procured under the TB CAP project, to the TB laboratories and treatment centers.

Inside MDRTB Management Facility: Project Initiated Practice of Personal Safety Measures

3.2.3.3 Improved Monitoring and Evaluation Systems

MDR TB Surveillance

TB CARE II Bangladesh is assisting the NTP in completion of the first National Drug Resistance Survey (DRS). The project staff including the Microbiologist and MIS Assistant based at NTRL have been playing a key role in planning, processing and analyzing samples, coordinating sample collection from the field level, and monitoring quality and accuracy of survey data.

Data collection for DRS is almost completed. Drug Sensitivity Testing (DST) is going on and is likely to take a few more months to complete the analysis. **Table 7** provides preliminary findings from the DRS survey. The findings are likely to vary after all the data have been analyzed.

Table 7: Preliminary Estimates of MDR TB Cases from DRS

DRS Status	New Cases	Retreatment Cases	Total
Sample Received	1144	274	1418
DST Performed	768	137	905
MDR TB Diagnosed	25	45	70
MDR TB Proportion	3.3	32.8	

Alongside this initiative, the project also providced assistance to set up MDR TB surveillance system through the Chest Disease Clinics (CDC) located in the targeted districts. The system has been set up to continue even after the completion of DRS. All the CDCs will routinely send the samples of MDR TB suspects to NTRL for culture and DST.

4 CHALLENGES ENCOUNTERED

Since beginning, the TB CARE II project tean has encountered several issues and challenges to implementing the project activities in a planned manner. Firstly, while the TB CARE II project is expected to complement GF supported activities, delays in disbursement of Global Fund resources hampered technical coordination with the NTP and resulted in changes to the planned implementation of some activities.

In addition, challenges were encountered relating to collaboration with the World Health Organization. Although the WHO is an implementation partner of the TB CARE II Bangladesh project, delays were expereinced as the TB CARE II team worked to formalize the partnership. As a result, the project was unable either to initiate or made limited progress on a number of activities planned to be implemented in partnership and conjunction with WHO, including procurement and operation of GeneXpert machines.

The TB CARE II Bangladesh project relies on the NTP information system for data that is needed for planning and reporting on outcome indicators. However, collection of TB performance data from NTP is a long and arduous process. Normally, performance data is not available until after six months from the end of a quarter. This hampered URC to develop realistic performance benchmarks, and track and report performance outcome.

5 RESULTS MATRIX

	Outcome Indicators	Indicator Definition	Baseline (2010)	Target 2011	Qtr 1	Qtr 2	Qtr 3	Year Total
	IR 3.2: Increased Use of Integrated Essential Family Planning, Health and Nutrition Services							
	Sub-IR 1: Improved access to quality TB and MDR-TB services							
1	Notification Rate of all forms of TB	Number of all forms of TB cases reported to NTP per year per 100,000	48.2	TBD				
2	Notification Rate of new smear-positive (SS+) TB cases	The number of new smear positive TB cases male and female reported to the NTP per year per 100,000 population.	83.5%	84.5%	77%	78%	Not Av.	Not Av.
3	Number of smear negative (SS+) patients notified	Total number of SS+ TB cases diagnosed in a year in the project area	10453	10515	2435	2467	Not Av.	Not Av.
4	Number of smear negative (SS-) patients notified	Number of smear negative patients registered and reported to NTP in a specified time period	1178	1200	359	424	Not Av.	Not Av.

5	Number of extra pulmonary patients notified	Number of extra pulmonary patients registered and reported to NTP in a specific time period	1372	TBD	400	521	Not Av.	Not Av.
6	Number of child TB patients notified	Number of child TB patients (age 0-14) registered and reported to NTP in a specific time period	189	200	67	80	Not Av.	Not Av.
7	Number of all forms TB cases put on treatment	Number of all forms of TB cases put on treatment	13322	13400	3273	3503	Not Av.	Not Av.
8	Number of patients enrolled in hospital based MDR-TB treatment (cumulative)	Total number of patients enrolled in hospital based MDR-TB treatment in a year (National)	515 (Till March,2011) *	540	581	623	Not Av.	Not Av.
9	Number of patients enrolled in community based MDR-TB treatment (disaggregated by male, female, children)	Total number of patients enrolled in community-based MDR-TB treatment in a year (TB CARE II)	0	TBD	0	0	0	0
11	Cure Rate of notified SS+ TB cases	Number of new SS+ cases registered in a year that were cured/Total number of registered SS+ cases in the same year	90.8%	>90%				>90%
12	Treatment Success Rate of notified SS+ TB cases	New smear-positive TB cases successfully treated (cured plus completed treatment) among the new smear positive patients registered during a specified period	92.3%	>90%				>90%
13	Treatment Success Rate for MDR-TB cases	Laboratory confirmed MDR-TB patients successfully treated (cured plus completed treatment) among those enrolled on 2nd line anti-TB treatment during the year of assessment	82% *	>82%				>82%
	Sub-IR 2: Increased knowledge and behavior on TB and MDR-TB							
14	% of people in the community aware of TB symptoms	Number of respondents with correct knowledge about TB symptoms/Total number of respondents from the project area	0	0	0			0
15	% of people in the community with knowledge about transmission of TB	Number of respondents with correct knowledge about transmission of TB/Total number of respondents in the project area	0	0	0			0
16	% of people in the community aware of TB prevention practices	Number of respondents with correct knowledge about TB prevention practices/Total number of respondents in the project area	0	0	0			0
17	% of people who know about DOTS corner for getting TB/MDR-TB services	Number of respondents who know about DOTS program for TB/MDR-TB services/Total number of respondents in selected in the project area	0	0	0			0
	Sub-IR 3: Increased compliance with TB and MDR-TB treatment guidelines and regimen							

18	Percent of health care providers complied with clinical guidelines	Number of health care providers complied with clinical guidelines/Total number of health care providers sampled for process observation	0	0	0			0
	IR 3.3: Strengthened Health Systems and Governance							
	Sub-IR 4: Improved capacity for governance and management of TB at all levels							
19	Number of districts with a TB control and prevention plan	Number of districts that have developed and are using a TB control and prevention plan	0	6	0			0
20	Number of people trained in DOTS with USG funding	Number of people (medical personnel, laboratory technicians, health workers, community workers, etc.) trained in the components of the DOTS strategy	0	TBD	TBD			TBD
21	Number of people trained in MDR-TB with USG funding	Number of people (medical personnel, laboratory technicians, health workers, community workers, etc.) trained in MDR-TB	0	TBD	0	0	0	0
	Sub-IR 5: Increased private sector participation in TB control and prevention							
22	Number of private providers linked to DOTS program	Total number of private providers linked to DOTS program through the project	0	0	0	0	0	0
23	Number of TB suspects/case referred by a particular type of health care provider (e.g. health assistant, shasthya shebika, village doctor, private practitioner, others)	Total number of TB suspects/case referred by a particular type of health care provider (e.g. health assistant, shasthya shebika, village doctor, private practitioner, others)	0	0	0	0	0	0
	Sub-IR 6: Strengthened support systems for effective delivery of TB services							
24	Number of lab technologists trained on smear microscopy	Total number of lab technologists from the project area trained on smear microscopy	0	108	0	0	0	103
25	Percent of labs participating in EQA for smears	Number of labs participated in EQA for smears/Total number of labs in the project area	100%	100%				100%
26	Percentage of concordant slides under EQA system (high false positive, high false negative, scanty false positive, scanty false negative)	Number of concordant (similarity of microscopy result between microscopy and EQA lab) slide out of total number of slides checked in EQA in a given time period, expressed in percentage.	0	0	0	0	0	0
27	Percent of labs performing TB microscopy with over 95% correct microscopy results	Number of labs with 95% correct microscopy results/Total number of labs in the project area	100% *	100%	0	0	0	100%
28	Smear Conversion Rate of new/re-treatment smear positive TB cases.	Number of new smear positive patients with negative smear result at the end of intensive phase/Total number of smear positive cases on treatment in the project area	87 *	>87				>87

29	Percent of facilities complied with IC guidelines	Number of UHC facilities complied with IC guidelines/Total number of facilities	0	TBD	0	0	0	0
30	Existence of MDR-TB quality control standard at the National level	Percentage of quality control standard compiles with MDR-TB management at the National level	1	2				2
31	Number of people trained in other strategic information management	Number of people (medical personnel, laboratory technicians, health workers, community workers, etc.) trained in other strategic information management	0	TBD	0	0	0	0
32	Number of supervisory visit with appropriate feedback	Number of supervisory visit done by district /Central level with checklist and appropriate feedback per quarter	0	10%	0	0	0	0
	Data represents 6 targeted districts	Data represents national level						

6 PROJECT ADMINISTRATION

6.1 Project Start up and Expansion

The TB CARE II Bangladesh was started in April 2011. A consultative workshop was organized in late March 2011 with the NTP, WHO, Global Fund, USAID and other implementing partners to identify programmatic gaps and activities as well as recommendations for developing the Year 1 work plan and selection of intervention districts. URC received USAID approval of the work plan and budget in April 2011.

The project completed recruitment and mobilization human resources, set up office structures, developed management processes and procedures, and conducted the initial baseline assessment. The project team worked hard to develop working relationship with NTP and other local implementing partners. Completion of these activities took more time than anticipated causing some delay in starting field level implementation of activities as per Year 1 work plan.

URC initiated the process for selection of NGO partners and expects to award sub-agreements in November 2011, subject to receiving USAID approval. NGO partners will play a key role in rapid expansion of project activities at the district and upazila levels particularly in carrying out ACSM, TB suspect identification and referral, and expanding PPM network.

6.2 Staffing

The project has completed recruitment of staff for all the technical positions as per project organogram. URC has recently identified a candidate for the Team Leader position who will be on board early January 2012.

6.3 Administrative Challenges

Recruitment of staff for key technical positions was a major administrative challenge. URC received and reviewed more than 400 applications for different technical positions with very few candidates having the required technical background and experience. Although recruitment has

been completed for all the technical positions, at the end of the reporting period URC still continued to investigate candidates for the Team Leader position.

6.4 Environmental Monitoring and Mitigation Activities

In tandem with the development of the Year 1 workplan, TB CARE II developed an Environmental Monitoring and Mitigation plan, following the determination of potential environmental threats for certain proposed project activities. However, the activities that were identified during the Environmental Screening of the project Year 1 workplan, relating primarily to minor renovations of labs and health facilities and procurement, management, and storage of health commodities, did not end up taking place in Year 1 due to time constraints. As the proposed activities requiring mitigation did not yet take place, there are therefore no concrete mitigation measures to report.

7 PROGRESS TOWARDS PROMOTING GHI GUIDING PRINCIPLES

7.1 Woman and girl-centered approach

TB CARE II is committed to including a women- and girl-centered approach at each level of program design and implementation. The TB CARE II team undertook several activities during Year 1 to support the equitable access to and use of TB and other social support services by women and girls, including expanding access to vocational training for female MDR TB patients to assist them to find employment after completion of treatment. Through the NGO grants program, special attention will also be given to increase TB case detection among women and to address the social, cultural, and institutional barriers that inhibit them from seeking care.

7.2 Coordination and Programmatic Integration

Coordination and programmatic integration have been given due attention in design and implementation of the project activities. The Year 1 work plan was developed in a participatory approach involving NTP, Global Fund, WHO and other local implementing partners in order to avoid any duplication of activities. URC followed the same participatory approach in conducting the project baseline, situational analyses, and developing guidelines and training curriculum.

7.3 Encouraging country ownership & investing in country-led plans & health systems

The TB CARE II project has been designed to complement and supplement the National TB Control Programme. The activities and priorities of the project have been developed with significant input from NTP and other local implementing partners. The project has positioned itself as a resource partner to support NTP and other implementing partners with best practices and approaches developed at the global level. A pertinent example is the introduction of cPMDT, which is now a part of national program led by NTP. The project support to development of guidelines on cPMDT and infection control, and training of lab technologists is intended to strengthen country-led health systems.

7.4 Promoting Research and Innovation

The project coordinated with USAID supported TRAction project to identify research needs and concept to develop new and innovative approaches to TB control. The project will also partner with TRAction in conducting the research intervention and scaling up best practices.